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PATENT SPECIFICATION

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DRAWINGS ATTACHED.



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COMPLETE SPECIFICATION.

Clamping Device for Holding Thermoplastic Foils During Shaping Thereof.

We, FR. HESSER, MASCHINENFABRIK-
AKTIENGESELLSCHAFT, a Company organised
under the laws of the Federal Republic of
Germany, of 99 Nauheimerstrasse, Stuttgart-
5 Bad Cannstatt, Germany, do hereby declare
the invention, for which we pray that a
patent may be granted to us, and the method
by which it is to be performed, to be par-
ticularly described in and by the following
10 statement:—

This invention is concerned with a clamp-
ing device comprising a plurality of clamp-
ing frames and their associated holders for
holding thermoplastic foils which are to
15 be shaped.

To hot shape thermoplastic foils, the latter
are usually firmly held in a flat condition
between two clamping frames which are
movable relatively to each other. With large
20 clamping frames, however, it is difficult to
align the holders carrying these frames so
that there is sufficient clamping pressure at
each point of the margins of the frames
bearing against each other when the device
25 is in the operative position. If the holders
are not guided accurately together, then con-
siderable force is necessary to firmly hold
the foils between the closed frames in the
required way.

To obviate this disadvantage, in accord-
ance with the present invention it is pro-
posed to mount the clamping frames in the
associated holders so as to be relatively
30 pivotable about two axes at right angles
to one another. By this means the frames
are correctly aligned by the action of clamp-
ing the foil.

The invention can be implemented by
having each clamping frame mounted in a
40 holding frame for pivoting about its axis
of symmetry or about an axis passing
through its centre of gravity such that the

pivotal axes of the two frames cross when
the device is in the operative position.

A further possibility, with the invention 45
is to have one clamping frame fixedly
mounted in the associated holding frame,
and its counter clamping frame mounted
for pivoting about two axes at right angles
to one another in its holding frame.

Moreover, this gimbaling has the 50
advantage that the clamping frames may be
quickly and simply changed for a variation
in format.

A preferred example of embodiment of 55
the invention will now be elaborated here-
after with reference to the accompanying
diagrammatic drawings.

Figure 1 shows an embodiment of the
clamping device according to the invention 60
in the open position.

Figure 2 shows the clamping device
according to Figure 1 in the closed position.

The clamping device according to Figures
1 and 2 includes two holding frames 2 and
3 pivotally connected together by means of a
65 hinge 1, and two clamping frames 4 and 5
arranged one in each holding frame. The
clamping frames 4, 5 are mounted for pivot-
ing about their axes of symmetry 6 and 7
70 respectively in the holding frames 2, 3 by
means of pins 8, 9, so that these axes 6, 7
cross when the device is in the operative
position, that is when the clamping frames
4, 5 bear against each other. 75

When a foil is clamped between the two
frames 4, 5, the clamping margins of the
latter are accurately aligned, so that all
points on the whole bearing surfaces of
the margins of the frames are under a con-
80 tinually uniform pressure.

Naturally, in contrast to the embodiment
of Figures 1 and 2, it is possible to have
one of the clamping frames stationary and

[Price 4s. 6d.]

to have only the associated counter clamping frame mounted on gimbals, that is for movement about two at right angles to one another. In this case, an additional frame is provided between the movable clamping frame and the holding frame thereof, said additional frame supporting the clamping frame for pivoting about the axis of symmetry or about an axis passing through its centre of gravity and, in its turn, being mounted for pivoting about an axis transverse to this axis in the holding frame concerned.

WHAT WE CLAIM IS:—

1. A clamping device for holding thermoplastic foils during shaping thereof, comprising two clamping frames which are mounted in associated holders and are relatively pivotable about two axes at right angles to one another.

2. A clamping device according to Claim

1, characterised by the fact that each clamping frame is mounted in a holding frame for pivoting about its axis of symmetry, or about an axis passing through its centre of gravity such that the pivotal axes of the two frames cross when the clamping device is in the operative position.

3. A modification of the clamping device according to Claim 1, characterised by the fact that one clamping frame is fixedly mounted in the associated holding frame and its counter clamping frame is mounted for pivoting about two axes at right angles to one another in the holding frame thereof.

4. A clamping device substantially as hereinbefore described with reference to the accompanying drawings.

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Two clamping frames move against one another
 ① Clamping device
 ② pins, if not aligned perfectly, there may be a problem operating the device
 Voted, there is no statement as to material composition of these pins
 ③ Angles - standard design

each clamp-
olding frame
f symmetry,
gh its centre 25
axes of the
aping device

mping device
rised by the 30
is fixedly
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is mounted
right angles
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Fig. 1

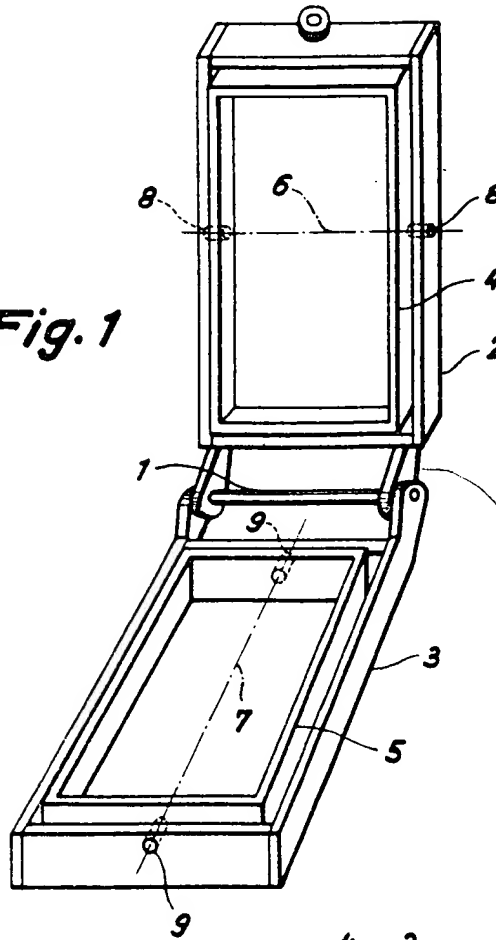
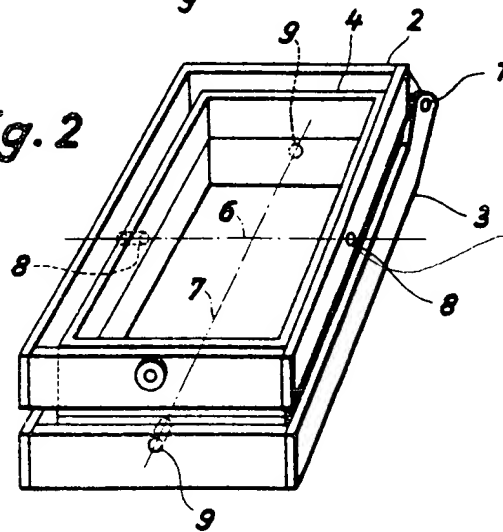


Fig. 2



*Antiquated
designs
Pino*